

The Partial Eclipse of the Sun, 1900 May 28, observed at the Stonyhurst College Observatory. By the Rev. W. Sidgreaves, S.J.

The continuous cloud of the morning began to break about noon. But there was no opportunity of observing the chromosphere for comparison with the photographs of the total eclipse until close upon the time of first contact. The examination was then carried on under the disadvantage of frequent passing clouds and mist. Four small prominences were located at the following position angles, measured from the north point round by east.

| | | | |
|--------------|--------|---------|-----------|
| 1 prominence | 13° 1' | high at | 39° 25' |
| 2 | " | 15° 25' | " 57° 20' |
| 3 | " | 13° 1' | " 61° 45' |
| 4 | " | 10° 9' | " 160° 0' |

The arc $270^\circ \sim 332^\circ$ escaped observation, being covered by the Moon at the time.

At times the sky was very clear, and definition perfect. The cusps were seen by three observers to be quite sharp, and the Moon's limb was a smooth arc, except for four small lunar mountains projected on the solar disc. No trace of the dark Moon could be seen outside the cusps. The boiling appearance at the Moon's limb did not seem to differ at all from that of the Sun's limb.

The solar radiation thermometer was read at intervals of ten minutes during the eclipse, and the readings being maxima are each the highest during the preceding ten minutes.

| G.M.T. h m | Fah. Scale. ° | G.M.T. h m | Fah. Scale. ° |
|---------------|------------------|---------------|------------------|
| 2 50 | 120.8 | 4 0 | 84.1 |
| 3 0 | 115.0 | 10 | 89.2 |
| 10 | 112.5 | 20 | 93.9 |
| 20 | 101.2 | 30 | 92.0 |
| 30 | 95.8 | 40 | 109.5 |
| 40 | 90.5 | 50 | 114.8 |
| 50 | 85.2 | | |

The last contact was timed by two observers: one with the 5-inch Clark Equatorial mounted in open air, the other with the 4-inch Cooke finder on the large equatorial. The times were taken directly from the sidereal clock in the transit room by two assistants, each receiving his electrical signal from his observer at the telescope. The night was cloudless, and the errors of the transit instrument were secured with sufficient accuracy. The

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clock's rate, losing 3·5 secs. daily, rests upon a single star observed on the 24th, and a pair on the 29th compared with seven clock-stars observed on the 28th. The mean rate between 24th and 28th was 3·3 secs., and 3·8 secs. between 28th and 29th. The resulting sidereal time of last contact was :

| | | h m s |
|-------------------------|-----|---------|
| By the 5-inch Clark ... | ... | 9 5 8·3 |
| „ „ 4-inch Cooke ... | ... | 9 5 8·4 |

The sky was very clear at the time, and definition excellent.

*Observations of the Partial Eclipse of the Sun, 1900 May 28,
made at the Radcliffe Observatory, Oxford.*

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Owing to the prevalence of cloud, the first contact could not be seen ; but toward the end of the eclipse the sky cleared, and satisfactory observations of the last contact were secured.

An interval of clear sky occurred just before the transit of the Moon's limb over the more prominent of two groups of sun-spots, and times of contact with the umbra of the largest of the group were observed.

In order to determine approximately the time of "greatest phase" the relative distances of the limbs of the Sun and Moon were recorded during intervals of clear sky. The resulting time is 3^h 53^m 20^s G.M.T.

The following are the observations of sun-spot and last contact :—

| Phenomenon. | Ob. server. | Telescope. | Aper- ture. | Power. | G M.T. | Remarks. |
|------------------------------|---------------------|------------|----------------|-----------|---------|--|
| <i>Sun-spot.</i> | | | | | | |
| First contact with umbra} | R. | Heliometer | in. | h m s | | |
| | | | 7·5 | 80 | 3 12 51 | |
| <i>End of Eclipse.</i> | | | | | | |
| Last contact | R. | " | " | " | 3 13 3 | Thought I saw it again some seconds after this time. Very diffused ; cloud passing. |
| " " | W. Barclay | 10 | 90 | 4 56 35·4 | | Very good ; last trace had just vanished. Recorded on Chronograph. |
| " " | R. Heliometer | 7·5 | 80 | 4 56 32·7 | | Good, but suspected trace of contact 1 ^s later. Observed by projection on a screen. |
| " " | C. Marl- borough | 3·2 | 72 | 4 56 34·2 | | Instrument shaken by wind. |

Observers: W., Mr. W. Wickham; R., Mr. W. H. Robinson;
C., Mr. E. E. McClellan.

Radcliffe Observatory : 1900 June 7.